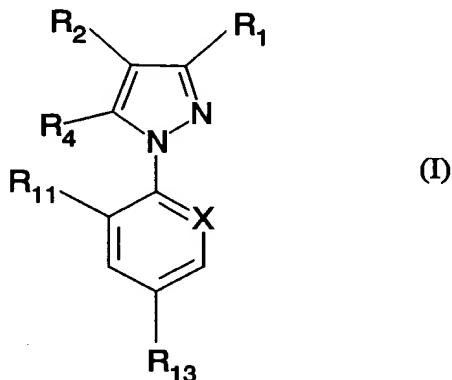


WHAT IS CLAIMED IS:

1. A method for attracting insects, said method comprising offering to said insects for ingestion an effective attractant amount of a compound having the formula:



wherein:

15 R_1 is CN or methyl;
 R_2 is $-S(O)_nR_3$;
 R_3 is alkyl or haloalkyl;
 R_4 is hydrogen, halogen, $-NR_5R_6$, $-S(O)_mR_7$, alkyl, haloalkyl, $-OR_8$ or
 $-N=C(R_9)(R_{10})$;

20 each of R_5 and R_6 , which are the same or different, is hydrogen, alkyl,
 haloalkyl, $-C(O)alkyl$ or $-S(O)_rCF_3$; or R_5 and R_6 together form a divalent lower
 alkylene radical which is optionally interrupted by one or more heteroatoms selected
 from O, S and N;
 R_7 is alkyl or haloalkyl;
25 R_8 is alkyl, haloalkyl or hydrogen;
 R_9 is hydrogen or alkyl;
 R_{10} is phenyl or heteroaryl, each of which is unsubstituted or is substituted
 with one or more substituents selected from the group consisting of hydroxy, halogen,
 $-O-alkyl$, $-S-alkyl$, cyano and alkyl;

30 each of R_{11} and R_{12} , which are the same or different, is halogen or hydrogen;
 R_{13} is halogen, haloalkyl, haloalkoxy, $-S(O)_qCF_3$ or $-SF_5$;

each of m, n, q and r, which are the same or different, is 0, 1 or 2; and X is nitrogen or C-R₁₂; provided that when R₁ is methyl, R₃ is haloalkyl, R₄ is NH₂, R₁₁ is Cl, R₁₃ is CF₃, and X is N.

5

2. A method according to Claim 1, having at least one feature selected from the group consisting of:

10

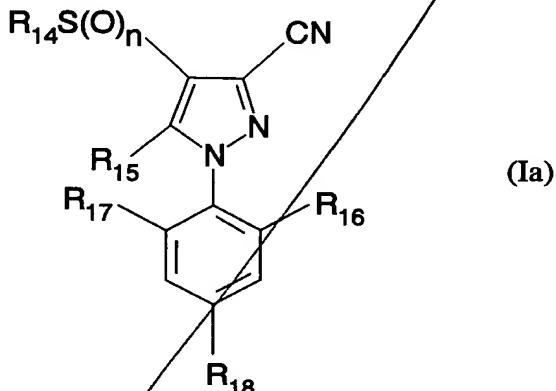
- (a) R₁ is CN;
- (b) R₃ is haloalkyl;
- (c) R₄ is NH₂;
- (d) each of R₁₁ and R₁₂, which are the same or different, is halogen; and

(e) R₁₃ is haloalkyl.

15

3. A method according to Claim 1, wherein the compound of formula (I) has the formula:

20



25

wherein:

30

- R₁₄ is alkyl or haloalkyl;
- R₁₅ is alkyl, haloalkyl, amino, alkylamino or dialkylamino;
- each of R₁₆ and R₁₇, which are the same or different, is hydrogen or halogen;

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R_{18} is halogen, haloalkyl, haloalkoxy or SF_5 , and
n is 0, 1 or 2.

4. A method according to Claim 3, wherein at least one of R_{16} and R_{17} is
5 halogen.

5. A method according to Claim 4, wherein each of R_{16} and R_{17} is
halogen, R_{18} is haloalkyl, R_{14} is lower haloalkyl and R_{15} is amino.

10 6. A method according to Claim 5, wherein the compound of formula (Ia)
is 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethyl)phenyl-4-
trifluoromethylsulfinylpyrazole.

15 ~~3~~ A method according to Claim 1, wherein said insects are insects which
are able to enter or inhabit buildings.

20 ~~4~~ ~~3~~ A method according to Claim ~~7~~; wherein said compound of formula (I)
is offered to said insects as an alternative food source at a locus which is in or near an
area in which other food is present.

25 ~~5~~ ~~4~~ A method according to Claim ~~8~~, wherein the food source comprising
said compound of formula (I) is in solid, liquid or gel form.

30 ~~6~~ ~~5~~ A method according to Claim ~~9~~, wherein said solid, liquid or gel form
is a solid, liquid or gel bait.

~~7~~ A method according to Claim 1, wherein said insects belong to the
family *Blatidae* or *Formacidae*.

~~8~~ ~~4~~ A method according to Claim ~~8~~, wherein said insects are cockroaches.

9
13. A method according to Claim 1, wherein said insects are American cockroaches (*Periplanipa americana*) or German cockroaches (*Blatella germanica*).

10
14. A method according to Claim 10, wherein said insects are American
5 cockroaches (*Periplanipa americana*) or German cockroaches (*Blatella germanica*).

11
15. A method according to Claim 8, wherein said compound of formula (I) is offered in an amount of from about 0.00001 g to about 20 g per 100 square meters.

12
10 16. A method according to Claim 15, wherein said compound of formula (I) is offered in an amount of from about 0.001 g to about 1 g per 100 square meters.

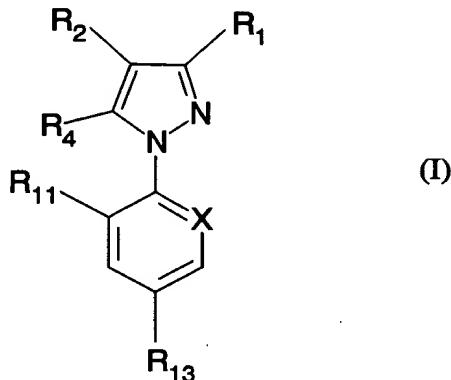
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17. A method according to Claim 8, wherein the food source comprising said compound of formula (I) comprises from about 0.001 to about 15 % w/w of
15 compound of formula (I).

14
18. A method according to Claim 17, wherein the food source comprising said compound of formula (I) comprises from about 0.1 to about 6 % w/w of compound of formula (I).

19. A method for attracting and killing insects comprising offering to said insects for ingestion a compound having the formula:

750X
5

10



wherein:

R₁ is CN or methyl;

15 R₂ is -S(O)_nR₃;

R₃ is alkyl or haloalkyl;

20 R₄ is hydrogen, halogen, -NR₅R₆, -S(O)_mR₇, alkyl, haloalkyl, -OR₈ or -N=C(R₉)(R₁₀);

each of R₅ and R₆, which are the same or different, is hydrogen, alkyl,

25 haloalkyl, -C(O)alkyl or -S(O)_rCF₃; or R₅ and R₆ together form a divalent lower alkylene radical which is optionally interrupted by one or more heteroatoms selected from O, S and N;

R₇ is alkyl or haloalkyl;

R₈ is alkyl, haloalkyl or hydrogen;

25 R₉ is hydrogen or alkyl;

R₁₀ is phenyl or heteroaryl, each of which is unsubstituted or is substituted with one or more substituents selected from the group consisting of hydroxy, halogen, -O-alkyl, -S-alkyl, cyano and alkyl;

each of R₁₁ and R₁₂, which are the same or different, is halogen or hydrogen;

30 R₁₃ is halogen, haloalkyl, haloalkoxy, -S(O)_qCF₃ or -SF₅;

each of m, n, q and r, which are the same or different, is 0, 1 or 2; and

15

X is nitrogen or C-R₁₂;

provided that when R₁ is methyl, R₃ is haloalkyl, R₄ is NH₂, R₁₁ is Cl, R₁₃ is CF₃, and X is N;
wherein said compound of formula (I) is offered in an amount which is effective both
5 as an attractant and as an insecticide.

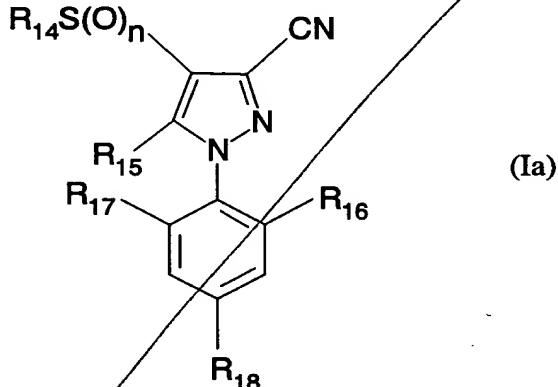
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20. A method according to Claim 19, having at least one feature selected
from the group consisting of:

10 (a) R₁ is CN;
(b) R₃ is haloalkyl;
(c) R₄ is NH₂;
(d) each of R₁₁ and R₁₂, which are the same or different, is
halogen; and
(e) R₁₃ is haloalkyl.

15

21. A method according to Claim 19, wherein the compound of formula (I)
has the formula:



wherein:

30 R₁₄ is alkyl or haloalkyl;
R₁₅ is alkyl, haloalkyl, amino, alkylamino or dialkylamino;
each of R₁₆ and R₁₇, which are the same or different, is hydrogen or halogen;

16

R₁₈ is halogen, haloalkyl, haloalkoxy or SF₅; and
n is 0, 1 or 2.

22. A method according to Claim 21, wherein at least one of R₁₆ and R₁₇
5 is halogen.

23. A method according to Claim 22, wherein each of R₁₆ and R₁₇ is
halogen, R₁₈ is haloalkyl, R₁₄ is lower haloalkyl and R₁₅ is amino.

10 24. A method according to Claim 23, wherein the compound of formula
(Ia) is 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethyl)phenyl-4-
trifluoromethylsulfinylpyrazole.

15 25. A method according to Claim 17, wherein said compound of formula
(I) is offered to said insects as an alternative food source at a locus which is in or
near an area in which other food is offered.

26. A method according to Claim 18, wherein the food source comprising
said compound of formula (I) is in solid, liquid or gel form.

20 27. A method according to Claim 19, wherein said solid, liquid or gel form
is a solid, liquid or gel bait.

25 28. A method according to Claim 20, wherein said insects belong to the
family *Blatidae* or *Formicidae*.

29. A method according to Claim 21, wherein said insects are cockroaches.

30. A method according to Claim 22, wherein said insects are American
cockroaches (*Periplaneta americana*) or German cockroaches (*Blattella germanica*).

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-17-

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23
31 A method according to Claim 27, wherein said insects are American cockroaches (*Periplaneta americana*) or German cockroaches (*Blatella germanica*).

24

22.

A method according to Claim 19, wherein said compound of formula (I) is offered in combination with a carrier or surface-active agent.

25

33.

A method according to Claim 19, wherein said compound of formula (I) is offered in combination with another pesticide.

26

10 24. A method according to Claim 19, wherein said compound of formula (I) is offered in an amount of from about 0.00001 g to about 20 g per 100 square meters.

27

35.

15 A method according to Claim 34, wherein said compound of formula (I) is offered in an amount of from about 0.001 g to about 1 g per 100 square meters.

28

36.

A method according to Claim 25, wherein the food source comprising said compound of formula (I) comprises from about 0.001 to about 15 % w/w of compound of formula (I).

20

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37.

17 A method according to Claim 26, wherein the food source comprising said compound of formula (I) comprises from about 0.1 to about 6 % w/w of compound of formula (I).

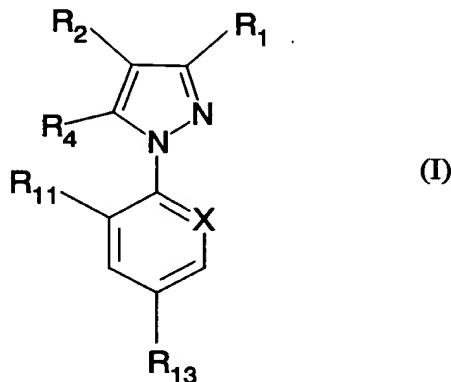
14

30 38. A method for controlling a population of insects at a locus which is in or near a food storage, preparation, serving or eating area, said method comprising offering to said insects as an alternative food source an amount of a compound having the formula:

5

10

15 wherein:



20

R₁ is CN or methyl;

R₂ is -S(O)_nR₃;

R₃ is alkyl or haloalkyl;

R₄ is hydrogen, halogen, -NR₅R₆, -S(O)_mR₇, alkyl, haloalkyl, -OR₈ or

25 -N=C(R₉)(R₁₀);

each of R₅ and R₆, which are the same or different, is hydrogen, alkyl, haloalkyl, -C(O)alkyl or -S(O)_rCF₃; or R₅ and R₆ together form a divalent lower alkylene radical which is optionally interrupted by one or more heteroatoms selected from O, S and N;

25

R₇ is alkyl or haloalkyl;

R₈ is alkyl, haloalkyl or hydrogen;

R₉ is hydrogen or alkyl;

R₁₀ is phenyl or heteroaryl, each of which is unsubstituted or is substituted with one or more substituents selected from the group consisting of hydroxy, halogen,

30 -O-alkyl, -S-alkyl, cyano and alkyl;

each of R₁₁ and R₁₂, which are the same or different, is halogen or hydrogen;

19

-19-

R_{13} is halogen, haloalkyl, haloalkoxy, $-S(O)_qCF_3$ or $-SF_5$;
 each of m, n, q and r, which are the same or different, is 0, 1 or 2; and
 X is nitrogen or $C-R_{12}$;

provided that when R_1 is methyl, R_3 is haloalkyl, R_4 is NH_2 , R_{11} is Cl, R_{13}

5 is CF_3 , and X is N;

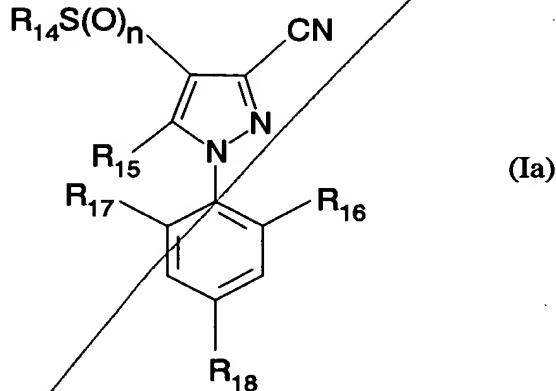
which is effective both as an attractant and as an insecticide.

39³¹ A method according to Claim 38³⁰, having at least one feature selected from the group consisting of:

10 (a) R_1 is CN;
 (b) R_3 is haloalkyl;
 (c) R_4 is NH_2 ;
 (d) each of R_{11} and R_{12} , which are the same or different, is halogen; and
 15 (e) R_{13} is haloalkyl.

40. A method according to Claim 39, wherein the compound of formula (I) has the formula:

20



25

wherein:

30 R_{14} is alkyl or haloalkyl;
 R_{15} is alkyl, haloalkyl, amino, alkylamino or dialkylamino;

20

each of R₁₆ and R₁₇, which are the same or different, is hydrogen or halogen; R₁₈ is halogen, haloalkyl, haloalkoxy or SF₅; and n is 0, 1 or 2.

5 41. A method according to Claim 40, wherein at least one of R₁₆ and R₁₇ is halogen.

42. A method according to Claim 41, wherein each of R₁₆ and R₁₇ is halogen, R₁₈ is haloalkyl, R₁₄ is lower haloalkyl and R₁₅ is amino.

10 43. A method according to Claim 42, wherein the compound of formula (Ia) is 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethyl)phenyl-4-trifluoromethylsulfinylpyrazole.

15 44. A method according to Claim 38, wherein the food source comprising said compound of formula (I) is in solid form.

45. A method according to Claim 44, wherein said solid form is a solid bait.

20 46. A method according to Claim 38, wherein said insects are cockroaches.

47. A method according to Claim 38, wherein said compound of formula (I) is offered in an amount of from about 0.00001 g to about 20 g per 100 square meters.

25 48. A method according to Claim 47, wherein said compound of formula (I) is offered in an amount of from about 0.001 g to about 1 g per 100 square meters.